# CLAIMS

1. A microarray disc characterized in that a substrate is provided with a pregroove and a thin film with an excellent adherence to a probe DNA or protein is disposed at least on the pregroove, and that a liquid drop containing the probe DNA or protein is arranged on a convex part or concave region of the pregroove so that the liquid drop expands in the tangential direction of the pregroove due to a surface tension of the liquid drop and/or in the instance of concave region, due to a restriction by concave groove wall with any expansion in the direction perpendicular to the groove restricted, and that the probe DNA or protein is immobilized on the substrate.

2. A microarray disc according to Claim 1, which has allocation information at the convex part or concave region of the pregroove on the substrate.

3. A microarray disc according to Claim 1, wherein the liquid drops are arranged in the form of spiral or concentric circle on the substrate.

4. A microarray disc according to Claim 1, which has marks indicating revolution phase on the substrate.

5. A microarray disc according to Claim 1, wherein the length at tangential direction is 2 times longer or more than the width at vertical direction of the pregroove regarding the probe DNA or protein applied region.

6. A microarray disc according to Claim 1, wherein a reflecting film is formed on a substrate, and at least one

layer of light-permeable film is formed on the film, the refractive index of the light-permeable film being smaller than that of the substrate and larger than that of the air, and a liquid drop containing probe DNA or protein is spotted on said substrate.

7. A microarray disc according to Claim 1 wherein at least one layer consisting of a thin film is formed on the substrate, and when a laser beam of wavelength λ1 is irradiated from the substrate side to detect the position of pregroove the irradiated laser beam partially penetrates the substrate; and when the laser beam of the detection wavelength λ2 is irradiated from the opposite side of the substrate to measure a liquid drop on the substrate, the irradiated laser beam partially reflects.

8. A spotting apparatus to produce a microarray disc of Claim 1, which comprises 1) unit of detecting a position of the pregroove, and 2) unit of discharging liquid drops containing the probe DNA or protein, in order to arrange the liquid drops of the probe DNA or protein on the convex part or concave region of the pregroove.

9. A spotting apparatus according to Claim 8, which comprises irradiating laser beam via an object lens at the pregroove, receiving the reflection beam with the first photodetector, after constituting tracking servo which make the position of the object lens controllable so that the irradiating beam of the object lens follow the pregroove, arranging means which discharging the spotting liquid containing probe DNA or protein at the pregroove and to

detect the relative position between discharging nozzle of the equipment and the pregroove, the second photodetector which detects the beam penetrated the pregroove and which has at least two divided cells is formed, the optical block which constitutes the tracking servo using the differential amplifier output for acquiring the difference of each output of two divided cells of the second photodetector, and the spotting liquid are arranged on the pregroove, the liquid being discharged from the equipment, and the equipment and the second photoetector are subjected to control to move together by controlling the traverse unit motor.

10. A spotting apparatus according to Claim 8, which is characterized in that by providing a code for reading a name of a spotting liquid on a tank containing the spotting liquid of the probe DNA or protein, reading the code with spotting equipment at the time of spotting, spotting the liquid on the pregroove which has address information, and recording a corresponding relation between the code and the address information on the spotted disc.